of additional stitching and fibrin glue may be indicated, and a closer follow-up is mandatory in the postoperative period.

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12/8/69752

Reply to the Editor:

I am pleased to add a brief comment to the well-illustrated case described here by Masiello and colleagues confirming by macroscopic and histologic examination what we called "echo-free perfused space," or pseudoaneurysm. We defined pseudoaneurysm after aortic allograft implantation as echo-free perfused space between the native aortic wall and the residual aortic wall (the left ventricular outflow tract tissue) of the allograft observed on postoperative echocardiography. After fortunate detection of a pseudoaneurysm late after operation in one patient and early detection in another patient who required immediate reoperation, all patients who had allograft implantation were reviewed retrospectively and Doppler echocardiographic examinations were carefully studied.

The development of pseudoaneurysms could not be correlated with the infective status (active or eradicated endocarditis) at the operation, but localization of pseudoaneurysms seems to correlate with the localization of preoperative abscesses or perivalvular leaks (in prosthetic valve endocarditis). The technique of allograft implantation (interrupted or continuous proximal suture line) did not influence subsequent development of echo-free perfused spaces.

After the real incidence of abnormal but mainly insignificant echocardiographic findings was known, our group described the use of fibrin glue in aortic allograft implantation.[1] Glue is applied immediately after completion of the proximal suture line (at this time, the allograft is still inverted into the left ventricle) and during completion of the distal suture line. There is another advantage of using fibrin glue in patients with active endocarditis at the time of surgery: glue can be mixed with antibiotics, which may help to eradicate valvular and perivalvular infection or to sterilize an abscess cavity.[2] However, elimination of echo-free perfused spaces is best realized during implantation of allograft by using the miniroot aortic valve replacement technique.

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Improved distribution of retrograde cold cardioplegic solutions

To the Editor:

In a recent article in this JOURNAL, Rudis, Gates, and Laks[1] showed conclusively that retrograde coronary sinus perfusion solutions may be distributed unevenly and leave the right ventricle inadequately protected as a result. They corrected this inhomogeneity of perfusion by occluding the coronary ostium with a purse-string suture, thereby preventing reflux and decompression of coronary veins proximal to the self-inflating balloon.

Most surgeons have probably noticed that the coronary veins closest to the coronary sinus ostium are often not fully distended during intermittent retrograde perfusion of cold cardioplegic solutions. Furthermore, the right ventricle remains relatively warm. However, when the ostium of the coronary sinus is occluded by digital compression (at the junction of the right atrium and inferior vena cava), all of the coronary veins become distended and the right ventricle becomes cold immediately. The rate of flow must usually be reduced to avoid excessive perfusion pressures to compensate for the elimination of reflux.

Other technical strategies, such as double balloon catheters, may achieve the same purpose, but the method described here is safe, simple, and inexpensive, and it adds only 3 or 4 minutes to the average cardiopulmonary bypass time.

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